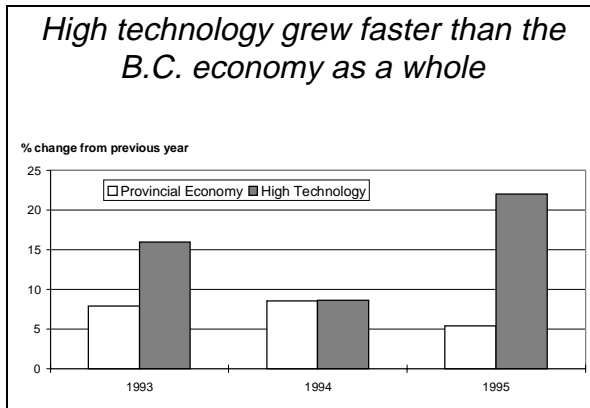


Business Indicators ♦ June 1997

The British Columbia High Technology Sector, 1988-1995

Growth in high technology GDP continued to out-pace the total B.C. economy

In 1995, high technology gross domestic product (GDP, in current dollars) grew 22% to \$2.4 billion, the largest jump since 1989. This growth was far stronger than the B.C. economy as a whole, which rose 5%¹. In every year since 1992, high technology GDP grew faster than the overall provincial economy, averaging 12% each year², twice the growth of the provincial economy.



High technology has grown more rapidly than the rest of the economy in every year since 1988 with the exception of 1991. In spite of these increases, the high technology sector remains a small component in the diverse B.C. economy. Its share of the economy rose from 1.8% of provincial GDP in 1988 to 2.6% in 1995.

¹ Based on data available April 1997.

² Compound rate.

Service industries dominate high technology

The service industries dominate in the high technology sector, generating roughly three-quarters of the sector's GDP and revenue, and accounting for just over three-quarters of the establishments and employment.

In 1995, high technology service industries generated \$1.8 billion, an increase of 17% from 1994. GDP in the high technology manufacturing industries grew 40% to \$628 million.

The number of establishments³ operating in the high technology sector in 1995 was 5,116, an increase of 404 establishments from 1994. High technology accounted for 3% of the 146,417 establishments of all types in B.C. during 1995.

Over 41,000 people were employed in high technology industries during 1995. This was an increase of 22% from the previous year. Growth rates were roughly the same in both manufacturing and service industries. The provincial workforce, by comparison, grew 4% to 1.4 million.

³ An establishment is the smallest unit of a company capable of reporting full financial statistics. Establishments are often equivalent to "plants" or "locations".

The high technology sector has been a source of constant employment growth. Between 1988 and 1995 employment averaged an annual increase of 6%, twice as fast as the provincial workforce as a whole.

The high technology industries in the province earned \$5.1 billion in revenue in 1995, up 34% from \$3.8 billion in 1994. High technology service industries had \$3.9 billion in revenue, while high technology manufacturing earned \$1.2 billion.

Three high technology service industries dominate

Engineering services and the closely related scientific and technical services industry dominate the high technology sector in B.C. In 1995, the industries saw substantial GDP growth, rising 21% to \$1.1 billion. This was two-fifths of the sector's GDP.

Engineering services had the largest number of establishments (1,546), followed by computer and related services (1,365). Both these industries had more establishments than the high technology manufacturing industries in total.

Three service industries earned three-quarters of the \$5.1 billion in revenue generated by high technology industries in 1995. Engineering services (\$1.8 billion in revenue), computer and related services (\$1.2 billion), and scientific and technical services (\$800 million) dominated the sector. The largest manufacturing industries, office, store and business machines and communication and other electronic equipment, each earned roughly \$300 million during 1995.

High technology establishments are concentrated in Mainland/Southwest

Two-thirds of the province's 5,116 high technology establishments were located in the Mainland/Southwest Development Region. The majority of these were found in the Greater Vancouver Regional District.

International Trade

This section focuses on international trade in high technology commodities. Readers are cautioned that the analysis does not include service industries such as engineering services and computer and related services. However, anecdotal evidence reported elsewhere⁴ suggests that all forms of service exports from B.C. have been growing.

High technology sector shipments⁵ jumped 23%, while exports rose 8%

In 1995, high technology manufacturing industries had shipments of \$1.2 billion, an increase of 23% from 1994. This represents 3% of the provincial total. Total shipments by all B.C. manufacturers rose 10% in 1995.

B.C. high technology manufacturers exported just under one-half of their shipments in 1995. The value of exports, \$563 million, was an increase of 8% from 1994. This difference in the growth rates of shipments and exports points to

⁴ "Service Exports – Shipping and Professional Service Industries Bring in More Overseas Revenue", *Exports (B.C. Origin)*, November 1996, BC Stats.

⁵ Shipments represent revenue from all production, sales, services and related activities in the high technology manufacturing sector.

increasing domestic consumption⁶ of high technology outputs.

In 1995 high technology commodities accounted for 2% of the value of B.C.'s exports. The proportion of B.C.'s exports accounted for by high technology commodities has grown from a 1% share held in 1988.

U.S.A. remains the primary high technology trading partner, both for exports ...

In 1995, the United States continued to be the dominant destination for B.C. exports of high technology commodities, accounting for more than two-thirds of all B.C. high technology sector exports (\$400 million). This proportion of high technology exports has remained fairly constant since 1988.

Total high technology commodity exports to the Pacific Rim region were \$101 million in 1995, up 16% from the year before. This was a shift from 1994, when the value of exports of high technology commodities to the region fell 2%. The proportion of B.C.'s high technology exports going to Pacific Rim countries has risen slightly since 1988, but remains under one-fifth of the total.

... and imports

During 1995, \$2.9 billion in high technology commodities were imported to British Columbia. The value of imports rose 19% from 1994, and has nearly doubled from 1988. The proportion of all B.C. imports accounted for by high technology commodities has increased from 12% in 1990 to 15% in 1995.

⁶ This includes consumption both in B.C. and in the rest of Canada.

In 1995 the United States was the source of 60% of the imports (\$1.7 billion). This has dropped slightly from the 62% of imports the USA accounted for in 1988. Nearly one-fifth of the value of high technology commodity imports in 1995 came from the Pacific Rim, half of that from Japan alone. The European Union was the source of just over one-tenth of the high technology commodities imported to B.C.

Computers & telecommunications are B.C.'s most valuable high technology commodity

The value of computers and telecommunication commodity exports in 1995 was \$272 million, accounting for nearly one-half of all B.C.'s high technology exports during the year. This proportion has remained fairly constant since 1988. The next largest high technology commodity group is computer integrated manufacturing, with just under \$90 million in exports in 1995.

Computers and telecommunications accounted for one-half of the value of high technology imports, up from two-fifths in 1988. The next largest value of high technology imports during 1995 was in life sciences commodities, with less than one-fifth of the value of imports.

B.C.'s 1995 high technology balance of trade – a \$2.3 billion deficit

Imports of high technology commodities in 1995 exceeded the total value of exports, resulting in an overall deficit of \$2.3 billion in B.C. high technology commodities. Although B.C. has had a high technology trade deficit of over \$1 billion in every year of this study, 1995 marks the first time that the deficit has exceeded \$2 billion.

Many imported high technology commodities are used in high technology manufacturing ...

Many of B.C.'s high technology imports are components or substances that could be utilised or incorporated into the production of high technology products. The single largest import commodity between 1988 and 1995 was essentially one group of computer parts; B.C. imported \$1.4 billion of this commodity during the 8 year period, a tenth of high technology commodity imports.

Some commodities used by the high technology sector are, for the most part, imported. All computers, video units, printers, etc. used in the high technology sector are imported, and more than 80% of integrated circuits and aircraft and aircraft parts are imported.

... and in non-high technology industries ...

Some imported commodities are utilised in industries other than those that are part of the high technology sector. One such example is the importation of aircraft, no doubt used by the transportation industry. Between 1988 and 1995 B.C. imported \$1.1 billion in aircraft, 7% of the total value of high technology imports for the period.

... which also use B.C. high technology commodities

Industries outside the high technology sector that make substantial use of high technology commodities produced in B.C. include laboratory supplies and banks.

This paper is drawn from a comprehensive overview of the B.C. high technology sector, *The British Columbia High Technology Sector, 1988-1995*. The report, which includes 27 pages of detailed tables, is available from the Business & Economic Statistics page of the BC Stats website⁷.

Three other related reports are also available from the website: an earlier edition of the sector analysis, *The British Columbia High Technology Sector, 1988-1994*, and two methodology reports: *Defining the High Technology / Knowledge Sector in British Columbia* and *The British Columbia High Technology Sector, Input/Output Analysis*.

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⁷ <http://www.bcstats.gov.bc.ca>